

# **CLAIM AMENDMENTS**

## **Claim Amendment Summary**

### **Claims pending**

- Before this Amendment: Claims 37-41 and 72-82.
- After this Amendment: Claims 37-41 and 72-82.

**Non-Elected, Canceled, or Withdrawn claims:** 1-37 and 42-71.

**Amended claims:** 37-41, 72 and 78-82.

**New claims:** None.

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## **Claims:**

**1-36. (Canceled)**

**37. (Currently Amended)** A method comprising:

receiving a query;

mapping the query from a query space to a question space to identify associated frequently asked questions (FAQ), the mapping comprises: comprising:

analyzing a log database to determine a relevance of previously stored frequently asked questions to the query, the analyzing comprises:

deriving confidence values associated with rules that indicate how reliably the rules relate the query to the list of frequently asked questions;

deriving confidence values associated with items in the rules that indicate how reliably the rules are matched to the query,

wherein the derivation of at least one of the confidence values associated with items in the rules is facilitated by iterative training of a neural network using data from the log database as training data,

wherein the neural network utilizes a non-linear activation function;

deriving confidence values based on how many words in the query match items in the rule;

assigning weights indicating how probable the query pertains to the frequently asked questions; and

assigning weights indicating how probable particular answers pertain to particular frequently asked questions,

wherein the weights are derived over time based on training facilitated by data in the log database,

wherein the confidence values and weights facilitate the determination of the relevance; and

~~iteratively training a search engine using data in the log database, wherein the search engine comprises a query parser and a FAQ matcher;~~

~~deriving weighting factors based on the iterative training, wherein the weighting factors are used to determine the relevance;~~

~~identifying a confidence rating which measures a degree of the relevance between the previously stored frequently asked questions and the query; and~~

ascertaining from the previously stored frequently asked questions the associated frequently asked questions based on the determined relevance;

mapping the associated frequently asked questions from the question space to a template space to identify associated templates;

mapping the templates from the template space to an answer space to identify associated answers; and

returning the answers in response to the query.

**38. (Currently Amended) [[A]]** The method as recited in claim 37, wherein the mapping from the query space to the question space comprises:

parsing the query to identify at least one associated concept; and

correlating the concept to one or more frequently asked questions.

**39. (Currently Amended) [[A]]** The method as recited in claim 37, wherein the mapping from the question space to the template space comprises cross-indexing from a first table containing question identifications to a second table containing template identifications.

**40. (Currently Amended)** ~~[[A]]~~ The method as recited in claim 39, wherein the mapping from the template space to the answer space comprises cross-indexing from the second table to a third table containing answer identifications.

**41. (Currently Amended)** ~~[[A]]~~ The method as recited in claim 37, further comprising:

presenting the answers to a user for confirmation as to which of the answers represent the user's intentions in the query;

analyzing the query and the answers confirmed by the user; and

modifying the answers that are returned in response to the query based on information gleaned from the analyzing.

**42-71. (Canceled)**

**72. (Currently Amended)** A method of parsing a search query, comprising:

segmenting the search query into individual character strings, wherein at least one of the individual character strings comprises a single character;

producing one or more output from the individual character strings, the one or more output selected from a group consisting of:

producing a parse tree produced from at least one parsable character string of the search query;

a partially-parsed fragment produced from one or more partially parsable character strings of the search query; and

generating at least one keyword generated based at least on one non-parsable character string of the search query; query, wherein for each output that comprises a parse tree or a partially-parsed fragment, determining a relevance of the parse tree and the at least one keyword output to a list of frequently asked questions (FAQ) is determined, the determination of the relevance comprising:

deriving confidence values associated with rules and with items in the rules that indicate how reliably the rules are matched to the output,

wherein the derivation of at least one of the confidence values is facilitated by using data from the log database as training data; and

assigning weights indicating how the output, the list of frequently asked questions and answers pertain to each other,

wherein the confidence values and weights facilitate the determination of the relevance,

~~wherein the relevance is determined by a FAQ matcher that has been iteratively trained using data from a log database; and using wherein the one or more output parse tree and the keyword are used~~ to return answers to the search query.

**73. (Previously Presented)** The method of claim 72, further comprising:

conducting keyword searching using the at least one keyword.

**74. (Previously Presented)** The method of claim 72, wherein the parse tree represents a collection of concepts related to the search query.

**75. (Previously Presented)** The method of claim 74, further comprising matching the parsed concepts to a list of frequently asked questions.

**76. (Previously Presented)** The method of claim 75, further comprising:

identifying at least one answer associated with the list of frequently asked questions that match the parsed concepts and keywords; and

presenting the at least one answer to a user in a user interface that permits a user to select a desired answer from the one or more answers.

**77. (Previously Presented)** The method of claim 76, further comprising:

logging the search query and at least one answer selected by the user in a log database; and

analyzing the log database to derive at least one weighting factor indicating how relevant the frequently asked questions are to the parsed concepts and keywords.

**78. (Currently Amended)** A ~~parser for a search engine, system~~ comprising:

a processor; and

one or more memories, wherein the one or more memories have stored thereon computer executable modules, the computer executable modules comprising:

a parser for a search engine comprising:

a segmentation module that segments a search query into one or more individual character strings, wherein at least one of the one or more individual character strings comprises a single character;

a natural language parser module that produces a parse tree from one or more parsable character strings of the search query; and

a keyword parser to identify one or more keywords in the search query and to output the keyword, one or more keywords; and

a log analyzer able to derive that utilizes data in a log database to derive, over time, various probabilities comprising:

confidence values associated with rules that indicate how reliably the rules relate the parse tree to a list of frequently asked questions;

confidence values associated with items in the rules that indicate how reliably the rules are matched to the parse tree,

wherein the derivation of at least one of the confidence values associated with items in the rules is facilitated by training using data from the log database as training data; and

weights indicating how relevant the parse tree and the one or more keywords are to a the list of frequently asked questions, wherein the various weights are determined based on iterative training using data from a log database;

wherein the parse tree, the confidence values, the weights and the one or more keywords are used to return answers to the search query.



**79. (Currently Amended)** The ~~parser~~ system of claim 78, wherein the parse tree represents a collection of concepts related to the search query.

**80. (Currently Amended)** The ~~parser~~ system of claim 78, further comprising a search module that matches the parsed concepts to a list of frequently asked questions.

**81. (Currently Amended)** The ~~parser~~ system of claim 80, wherein the search module:

identifies at least one answer associated with the list of frequently asked questions that match the parsed concepts and keywords; and

presents the at least one answer to a user in a user interface that permits a user to select a desired answer from the one or more answers.

**82. (Currently Amended)** The ~~parser~~ system of claim 81, wherein the search module:

logs the search query and at least one answer selected by the user in ~~[[a]]~~ the log database; and

analyzes the log database to derive at least one weighting factor indicating how relevant the frequently asked questions are to the parsed concepts and keywords.